



The Professional Rigger®

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TECHNICAL NEWS

Load Stability & CG

We can enhance our understanding of how a load maintains its stability by looking at the location of its center-of-gravity (CG). The conversation of righting moments versus tipping moments will be covered in a future newsletter, but for this issue we wanted to present a short workshop in determining basic stability.

A rigger is often challenged with the task of turning a load. If we must turn the load onto its side, we must decide whether the new landing surface is appropriate for placement. If the CG is not over the footprint created by the new landing surface, then the load will not stay upright. It will fall over.

Let's consider the load below (fig. 1) and the four sides as shown. [For these workshops we are not seeking info. about the front or back of the load.] If we were assigned the task of placing this load on any of its four sides, which side(s) would provide a suitable base for the load?

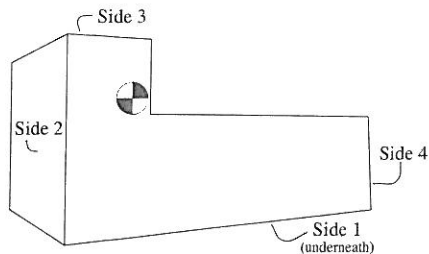
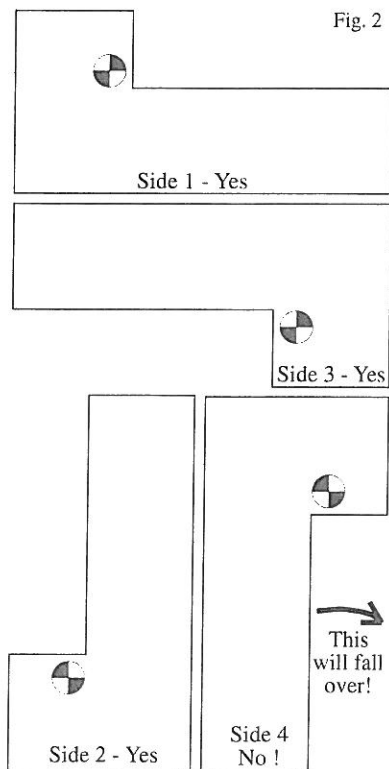


Fig. 1

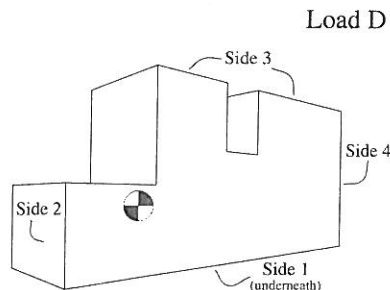
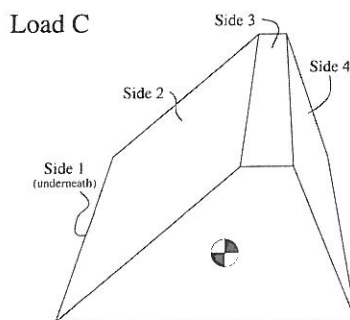
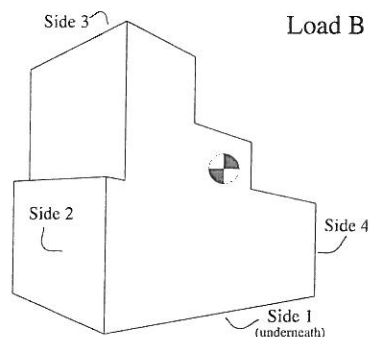
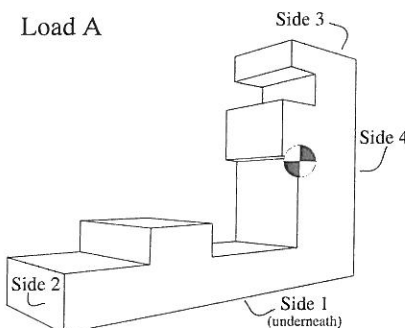
Given the four sides, we envision the load rotating to see if the CG is over or supported by a base foot. This foot can be one, two or more supports. Also we should be aware that the load's outside structure does not always represent the concentration of load. Sometimes a large piece of equipment's CG is towards one end or sidewall because there is a greater volume of steel or other heavy component in that area.

In the solution to the right (fig. 2) we can see that the load is stable as it rests on side 1, side 2 and side 3. We recognize that it wouldn't take much to get the side 3 scenario to tip over with a little help, however it will sit if undisturbed. The position with side 4 on the bottom is not acceptable. It will tip over.



Rigging Workshop Assignment

Try your hand at determining the stability of the four loads below. Decide if the load will rest on each of the 4 sides for every example.



CLIENT NEWS

USS/Kobe Steel

USS/Kobe Steel contracted WRRC to conduct a 3-day Certified Inspector Program at their Cleveland, OH location on July 11 - 13.

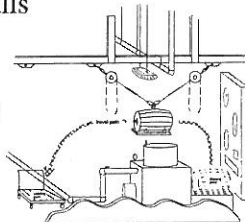
WRRC's Bill

Wall presented the program which is designed to develop and increase the participants' skill and knowledge in wire rope and rigging gear maintenance and inspection. The subjects covered during the program were wire rope, wire rope slings, synthetic web slings, alloy chain slings, and rigging gear. Written exams on each section were administered and hands-on rigging gear inspections were performed.



Sun Company, formerly Chevron Products

Mr. Jack Miller requested five 1-day maintenance rigging courses to be presented during the month of September. WRRC's Russ Donaldson presented the workshops which were designed for millwright and pipefitter-type rigging. The workshops addressed load drifting with chain falls and placing loads with mobile cranes into heavily obstructed areas.



The Professional Rigger is a quarterly publication of Wire Rope & Rigging Consultants, Inc. It is distributed to those whose occupations require the safe and effective use of lifting and rigging equipment. For more information contact: Editor, The Professional Rigger, PO Box 728, Vancouver, WA 98666 (206) 256-5730.

Idaho Power

Mr. Leon Swensen contracted WRRC to present four 2-day Electric Utility Rigging Training programs for employees at their Pocatello and Twin Falls locations. The training programs consisted of classroom instruction and hands-on practicals using a pole and cross-arm structure.

In September, WRRC also presented three 2-day Comprehensive Rigging Programs for employees at Idaho Power's Oxbow and Boise locations. Subjects addressed included rigging techniques and load control methods.

Alaska Clean Seas

On September 26 & 27, WRRC presented a 2-day Comprehensive Rigging Program for 15 people at Alaska Clean Seas' Prudhoe Bay, AK location. Mr. Tom Jones coordinated the program which was conducted by WRRC's Russ Donaldson. The course consisted of eight hours classroom instruction including many written workshops, followed by a series of "live-load" field rigging exercises.

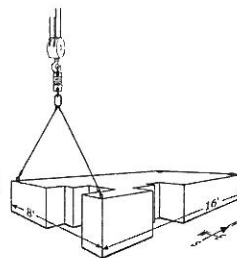
MK Ferguson

Mr. Ron Hatch contracted WRRC to present three 2-day Comprehensive Rigging Programs and three 1-day Advisor Classes. WRRC's Mike Parnell and Devon Beasley conducted the programs over a two week period. Subjects addressed during the Advisor Classes included load chart interpretation and crane dynamics using WRRC's Crane Simulator. Rigging to the center of gravity and workshops using advanced rigging techniques were also included in the program.

ARCO Alaska, Inc.

Mr. Leon Platt of ARCO Alaska, in Prudhoe Bay requested a two-day Comprehensive Rigging Program for the crews based on Alaska's north slope.

The program focused on rigging a variety of loads and included load weight estimation, load control and various rigging techniques.



Maine Safety Council

Mr. Rick Kadlec, Training Coordinator for the Maine Safety Council contracted WRRC to present a rigging safety program at the Maine Safety & Health Conference on September 29th in Bangor, ME. Participants completed written workshops addressing load control, various hitch types and rigging to the center of gravity.

ANNOUNCEMENT

Beginning Jan. 15, 1995 all (206) area codes for Parnell Services Group (PSG) phone numbers will be changed to area code (360). The new numbers are listed below:



Wire Rope & Rigging Consultants
(360) 256-5730

Crane & Equipment Training
(360) 256-5832

Crane & Lift Inspections
(360) 256-2862

PSG's fax number will remain the same at (503) 286-8012

WRRC NEWS (CONT)

Rigging Training Workshop 1995 - Portland, OR

With the huge success of Rigging Training Workshop 1994 behind us, we are excited about RTW '95, which will be held in **Portland, OR** (please see enclosed flyer). Workshop attendees will participate in Rigging Level I, II and III followed by Master Rigger sessions. Problem-solving training sessions address rigging applications which will challenge those who are new to rigging as well as the seasoned veteran. A crane & rigging accident case study and trainers' forum round out the event.



WRRC's Mobile Learning Center is used during the Hands-On Workshop

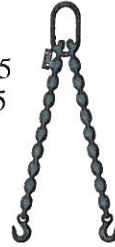
and includes mobile and gantry cranes, crane and rigging simulators, a drifting structure, rigging towers, jacking and rolling equipment, and state-of-the-art material-handling devices.

A Rigging Rodeo will cap off RTW '95 with everyone participating. The events include team competition in moving loads (load control), rigging gear inspections, hand-signals, crane load charts, accident investigation, rigging plans and knot tying & splicing. **Call today to register, as seating is limited.**

WRRC's Certified Inspector Program

Don't miss out on our next Rigging Gear Inspector's Course. The 1995 course dates for programs in Vancouver are:

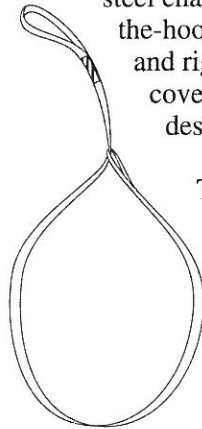
March 6-9, 1995
September 11-14, 1995
December 11-14, 1995



(Please see the enclosed Flyer for more information.) Call WRRC today to register and reserve your place!

This course addresses inspection of wire rope, wire rope slings,

synthetic web slings, alloy steel chain slings, below-the-hook lifting devices, and rigging gear, and covers proof and destructive testing.



The instructional format is based on OSHA CFR 29 1910, ASME B 30 series, ASTM A-391, and ASTM E-4.

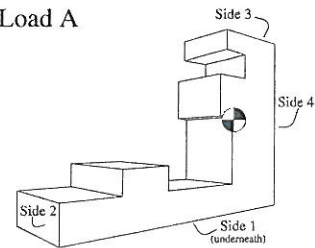
Participants are required to pass written tests and hands-on field inspections to successfully complete each section.



Load Stability & CG Workshop

[from pg. 1]

Load A



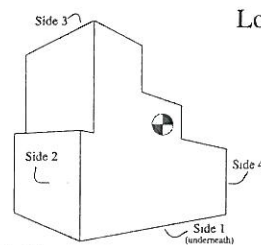
Side 1 Stable

Side 2 Unstable, requires cribbing or blocking

Side 3 Stable

Side 4 Stable

Load B



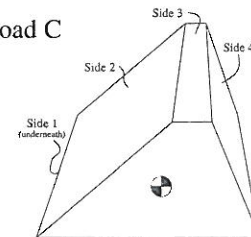
Side 1 Stable

Side 2 Unstable, requires cribbing or blocking

Side 3 Unstable, requires cribbing or blocking

Side 4 Unstable, requires cribbing or blocking

Load C



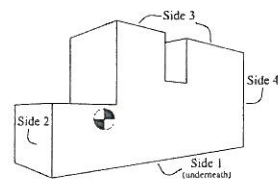
Side 1 Stable

Side 2 Stable

Side 3 Unstable, requires cribbing or blocking

Side 4 Stable

Load D



Side 1 Stable

Side 2 Stable

Side 3 Unstable, requires cribbing or blocking

Side 4 Stable

Rigging Training Workshop 1995



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CRANE & EQUIPMENT TRAINING, INC. • PO Box 728, Vancouver, WA 98666 • Bus (206)256-5832

Training Services

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- Overhead Cranes
- Bulldozers
- Backhoes
- Front-end Loaders
- Fork Lifts
- Man-Baskets (SPP)
- Scrapers
- Trenchers
- Bucket Trucks
- CDL
- Load Securement
- Aerial Work Platforms
- Snow Cats

Pacific Gas Transmission

Mr. David Young, Training Specialist for PGT contracted CET to conduct a number of training programs between July and September. The courses lasted from two to five days with a varying number of participants. The hands-on oriented programs addressed safe and efficient operation of cranes, yard tractors, bucket trucks, snow vehicles and commercial driver's license instruction.



FERMCO

Mr. Dan Brown asked CET to conduct a Mobile Crane Inspector's Course July 5-8. A total of nine operators and mechanics participated in the training which required hands-on performance inspections using daily, monthly and annual checklists.

Potomac Edison

Mr. Bob Schellhaus contracted CET to conduct a 4-day Crane and Rigging School the week of July 11. The activity-centered program included the use of CET's crane simulator. The hands-on sessions required the operators to make a number of lifts with the crane in a variety of configurations.



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- Manual, Air & Elec. Hoists
- Jib Cranes
- Winching Systems

Oregon / Washington

CLI's Dave Pelkey performed a series of tests/inspections for the following clients over the last 4 months.

- Burlington Northern Railroad
- Port of Vancouver
- Weyerhaeuser - Cosmopolis
- Reynolds Metals
- Wiegardt Brothers
- Port of Peninsula
- East Point Seafoods
- Ilwaco Fish Co.
- Chinook Packing Co.
- Port of Chinook
- Port of Ilwaco
- Yoko Sheldon Fish Company
- Electric Contractors

On the "Slope"

CLI's affiliate company in Anchorage, AK, Alaska Crane & Lift Inspections, Inc. (ACLI) recently completed inspections on oil platforms in the Cook Inlet for Shell Oil.



ARCO contracted ACLI to perform annual inspections for 40 mobile lifting devices at their Prudhoe Bay location.

ACLI inspected approx. 40 lifting units including manlifts, overhead and mobile cranes for Arctic Rentals (sub. of VECO) in Prudhoe Bay, AK.